Underground Artificial Storage and Recovery Reservoir Permit Pre-Application Process

This is a working flow chart for coordination between OCR, WQ and WR Ecology programs during the pre-application period for potential Aquifer Storage and Recovery (ASR) projects with OCR funding agreements.

Note: Written reports in bold yellow highlight. Color coded roles: WQ in green, WR in blue and OCR in orange, DOH in purple



Pre-application meeting with applicant, WQ, WR, OCR, DOH

> Implementation plan includes steps and timeline to address WAC 173-157-:

Feasibility Study

Report with

Implementation

Plan

- Conceptual model (-120)
- Project Operation Plan (-130)
- Legal Framework (-140)
- EAA (SEPA for full project) (-150)
- Mitigation Plan (-160)
- Monitoring plan (-170)

Assess GW quality compliance (WAC 173-200) & other WQ requirements1 include:

- Existing WQ data on
 - Background² data (8 samples)
- Injection water
- Aguifer
- Aguifer matrix (chip samples)
- Numerical Simulation predictions of potential geochemical reactions in aquifer
- · Identify data gaps and next steps

WQ reviews Report and recommendation provided

WQ, WR, OCR **DOH** review and recommendation

 WQ Feedback on next steps and additional data needs from **Feasibility Study report**

- · Identify data gaps and ok to proceed to QAPP
- DOH check-in

review

 OCR and WR provide non-WQ review of Feasibility study and identify additional data gaps

WQ reviews report and recommends additional work

Aquifer testing and water quality characterization and Geochemical Compatibility Modeling (water-water and rockwater) Summarize in **Data Collection Report**

- · Refine predicted geochemical reactions using new data
- · Potential for additional geochemical modeling, as needed
- OCR, WQ, WR review of final report
- WQ reviews and recommends additional data collection, if needed
- Send to DOH for information and review (if DOH requested additional data collection)

Additional aquifer testing & WQ characterization if needed to determine WQ criteria for project compliance

Decide if project will comply with WQ Criteria and WQ feedback to proponent

Yes

AKART report & Request for OPI determination

AKART report and request for OPI.

 AKART and WQ sampling report included in Final compiled feasibility report. Feedback on OPI request and reviewed as part of final compiled feasibility report³

Additional treatment or other measures

No

Reservoir Permit **Application Submitted with Final compiled Feasibility**

Report

Yes

- · Final report compiles all reporting to date in one document. WQ. WR, and OCR review. If part of funding agreement, OCR reviews for agreement deliverable before submittal for permit application
- Send copy to DOH for information

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1. Refer to WQ Resources Guidance provided at pre-application meeting (ECY publications nos. 15-10-024 and 17-10-035).

WQ review

Aquifer testing

and WQ

sampling

QAPP

Complete QAPP to address:

-aquifer test

WQ data gaps

by-case basis)

WQ, and WR, with copy

QAPP review by OCR,

to DOH, as needed)

OCR approves QAPP

Note additional QAPPs

may be needed for future

before field work.

sampling efforts.

-WQ sampling to fill

-modeling (on case-

1) All sampling/testing:

- 2. Background groundwater quality conditions must be established according to the procedure defined in the Groundwater Quality Implementation Guidance (ECY Publication no. 96-02, Section 4.2.1.1.3), Background conditions should be used to define criteria for assessing compliance with the Groundwater Quality standards and to determine that the ASR operation is not violating anti-degradation.
- 3. Notes on timing/next steps: WQ issues OPI with ECY Director approval OR denial before a permit decision. Informal feedback to applicant would happen as part of application review and before preliminary permit for pilot testing. (Preliminary permit(s) for pilot testing issue after reservoir application submitted and are based on application.) Reservoir permit includes WQ criteria, monitoring & reporting.
- 4. WQ = Ecology Water Quality Program, WR = Ecology Water Resources Program; OCR = Ecology Office of Columbia River; DOH = WA Department of Health

Pre-Application Form: Proposed source water and water rights

- Proposed reservoir if known
- Anticipated issues AKART anticipated?
- List of references (background reports)
- · Application approach

WQ Resources/Guidance:

- Purple Book-Reclaimed water guidance
- AKART/OPI Guidance
- Groundwater Quality Standards Imp. 9602
- WR Resources/Guidance: WR Aguifer Test Guidance
- Applicant to discuss any permit requirements for
- aquifer testing with WR
- **General Guidance**
- ASR Application Instructions · ASR overview Flow chart
- QAPP guidance

To request an ADA accommodation, contact Ecology by phone at 509-454-4241 or email at tim.poppleton@ecy.wa.gov. For Washington Relay Service or TTY call 711 or 877-833-6341. Visit Ecology's website for more information.